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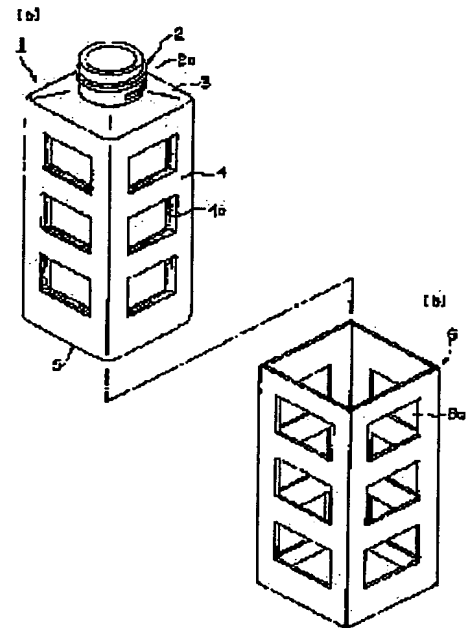
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## (54) CYLINDRICAL COVERING BODY AND ULTRATHIN HOLLOW CONTAINER COVERED WITH THE SAME

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To recover a used disposable hollow container efficiently for recycling by a method wherein the hollow container is formed so that it can be compressed easily to reduce its volume and labels or the like stuck to its trunk can be easily separated while preventing heat distortion of the container by the label.

**SOLUTION:** The hollow container main body in an tubular shape comprising a mouth/neck part 2, a shoulder part 3 connecting to the mouth/neck part, a trunk part 4b and a bottom part 5 is made up of a thermoplastic synthetic resin by blow molding, and while the trunk part and the bottom part are formed in a thickness that is not so thin as to be distorted by thermal expansion, the trunk part is formed in an ultrathin structure with protuberances 4a deformative in expansion at the time of filling under heat provided, being dented toward the inside from the trunk wall surface 4b, and thereby the ultrathin hollow container is made up. A covering body 6 in a case-like shape having openings 6a and serving as a label or the like is put over the trunk part of the container, and while unnecessary deformation of the container arising from expansion can be prevented, the protuberances 4a are deformed by expansion and projected through the openings 6a to hold the covering body 6, and thereby the ultrathin hollow container 1A covered with the covering body 6 is composed.



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CLAIMS

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[Claim(s)]

[Claim 1] It is the tubed covering object which can be put on the hollow container characterized by being covering objects, such as a label put on the drum wall section of the hollow container which carried out tubed, and forming opening for the part the drum wall of a hollow container carries out [ a part ] bulge deformation at the cylinder surface of this attachment object while this covering object is formed in a tube-like object according to the configuration of the drum wall of a hollow container projecting.

[Claim 2] Said covering object is a tubed covering object which can be put on the hollow container indicated to claim 1 characterized by being formed using paper.

[Claim 3] Said covering object is a tubed covering object which can be put on the hollow container indicated to claim 1 characterized by being formed using a synthetic-resin film.

[Claim 4] By carrying out blow molding of the hollow container which carried out tubed [ which consists of a top neck part, the shoulder formed successively to it, a drum section, and a pars basilaris ossis occipitalis ] using thermoplastic synthetic resin, said shoulder and pars basilaris ossis occipitalis It is the hollow container of super-\*\*\*\* which forms in the thin meat of extent which does not carry out thermal-expansion deformation, and is characterized by forming and said drum section becoming so that covering objects, such as a label formed in tubed while denting and preparing the lobe in which bulge deformation is possible inside the wall surface and forming in super-\*\*\*\*, can be put.

[Claim 5] By carrying out blow molding of the hollow container which carried out a top neck part, the shoulder formed successively to it, a drum section, a pars basilaris ossis occipitalis, and tubed [ becoming ] using thermoplastic synthetic resin, said shoulder and pars basilaris ossis occipitalis While forming in the thin meat of extent which does not carry out thermal-expansion deformation, said drum section To the drum section of the hollow container of super-\*\*\*\* which dented the lobe which carries out bulge deformation inside the wall surface, and was formed in super-\*\*\*\* The hollow container of super-\*\*\*\* which established covering objects, such as a label characterized by said lobe making covering objects, such as a label formed in tubed, put possible [ a protrusion ], stopping the lobe which carried out bulge deformation to opening prepared in the covering object while preventing the unnecessary deformation by expansion, and coming to fix a covering object.

[Claim 6] Said hollow container is a hollow container of super-\*\*\*\* which established covering objects, such as a label indicated to claim 4 characterized by being formed and becoming so that biaxial extension blow molding may be carried out and it may have thermal resistance thru/or 5.

[Claim 7] Said covering object is the hollow container of super-\*\*\*\* which established covering objects, such as a label indicated to claim 5 characterized by coming to be constituted using the same quality of the material as the body of a hollow container thru/or 6.

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] The invention in this application relates to the light-gage hollow container which put the disengageable label etc. on the hollow container which established the panel wall which absorbs the pressure deflection in a container in the drum wall section of a container especially simply with respect to the hollow container made of synthetic resin which exfoliates simply, and can classify and collect from a container the labels stuck on the drum wall of a hollow container.

[0002]

[Description of the Prior Art] Although glass \*\* has been used since a health side and contents can be checked and reuse is possible as a container which holds edibles, such as alcohol, soy sauce, edible oil, and a soft drink, from the former With the appearance of a new synthetic-resin ingredient, with the advance of the forming technique of the hollow container using it, it was lightweight, and it is hard to be divided, and recent years come and the hollow container made of synthetic resin came to be used [ shaping of various hollow containers is attained and ] instead of glass \*\*.

[0003] Then, since the hollow container by which biaxial extension blow molding was carried out using polyethylene terephthalate (PET) resin does not contain impurities, such as a plasticizer, and is excellent also in gas barrier nature and the shelf life of contents while it has very high transparency and gloss, it is increasingly used in the range large as various potable water, a seasoning, and a food-grade container of an alcoholic beverage and others. Along with change of a social situation, productivity and convenience come to be searched for, and change comes to be looked at also in respect of eating habits by it and coincidence, and an established soft drink, an established sport drink, etc. have come to be consumed so much.

[0004] By the way, in connection with the established food held in the hollow container made of synthetic resin coming to be consumed in large quantities, while such a living environment changes, the container of the empty used as used came to be discharged in large quantities as dust. And these synthetic-resin containers discharged in large quantities are also becoming various social problems from the reasons of there being a possibility of polluting a living environment at the same time they require a great disposal cost, in order it is difficult to decompose like common dust, and to process by the same approach as the conventional refuse disposal from calorific value becoming large, if incineration processing is carried out.

[0005] Then, about processing of the used synthetic-resin container also used as the cause of causing social problems, such as such environmental pollution and a waste of a resource, container recycling law will be enforced from the standpoint of a deployment of a resource. However, it is a requirement that it can classify and refine so that it may be usable as a resin raw material, while the container which became empty in order to reuse smoothly the container which becomes used and is discarded as a resource can collect in large quantities and efficiently, and reuse can moreover be carried out in low cost. Therefore, in order to collect hollow containers efficiently, to desire to be discarded after making as small as possible the volume of the container which became empty and to reuse as a raw material, it must be what can be easily classified so that the collected container may not contain an impurity.

[0006] by the way, in the goods marketed widely, as various hollow containers made of synthetic resin come to be used abundantly It is, although it must be the thing which heat-sterilized the contents of juice and others and was poured in into the hollow container with the hot condition and which carried out the so-called heating restoration. These containers Since it is easy to deform the wall surface of a container in connection with content volume contracting and the inside of a container being in a reduced pressure condition, since it is surely cooled after carrying out heating restoration of the contents and being sealed, it is necessary to prevent such deformation. Then, in order for the wall surface of a container to deform and

not to spoil the appearance of an appearance, what was fabricated by configuration which has reduced pressure-proof nature and reinforcement so that the wall surface of a container may not deform is used as indicated by JP,56-109905,U, JP,57-199022,U, etc.

[0007] In order to raise the buckling strength of a container in the hollow container of the thermal resistance which gave reduced pressure-proof structure to the drum wall section as described above widely used from the former, while preparing the concave convex rib of a hoop direction in the drum wall section, in order to absorb change of the internal pressure accompanying change of the content volume of a container, what established the absorption panel wall which deforms a part of drum wall was common. Such a reduced pressure-proof container to the skin of a drum section usually And contents and quality in a container, In the conventional hollow container 31 which was described above from it being common for the label which specified the matter of the manufacturer and others to be stuck and to be marketed At the same time it forms absorption panel wall 34c in the drum section upper and lower sides which avoided this rib, while forming in the hoop direction of a drum section 34 rib 34b which carried out the concave convex for giving reinforcement, as shown in drawing 1010 [0008] which forms flat field 34a for sticking L, such as a label, on the part except having formed said rib 34b and absorption panel wall 34c in the drum section 34, and sticks L, such as a label, on the attachment part concerned however, in the pressure-resistant hollow container 31 which has the above structures Since it is not easy to have prepared reinforcing rib 34b and absorption panel wall 34c, to compress the container which became empty, and to make the volume small The flat special part which it made L, such as a label, easy for it to be difficult to collect the containers of empty with the volume in large quantities, and to stick on a drum section 34 must be prepared. Furthermore, L, such as a label stuck on the wall surface of a drum section 34 In order to make it hard to separate, use adhesives 37, are stuck, and Playback took time and effort too much so that it might not be easy to classify so that it may grind the collected container that different various quality of the materials from the quality of the material of a container and printing ink are used for the quality of the material of Label L and it may not contain an impurity from it having been general and it could reuse as a raw material. Therefore, if it is the hollow [ that it continues being the former ] container 31 which the configuration of the container discarded described above, it is difficult to collect the containers discarded by empty by becoming in large quantities and efficiently, and to satisfy the requirements for reusing as a raw material.

[0009] Then, the thing which the hollow container which has pressure-proofing and a thermal protection system became used, and was discarded It can collect in large quantities efficiently, and impurities, such as a label, can be easily separated after crushing. The result by which the research on the hollow container it enabled it to reuse simply as a raw material was made, Much proposals about the container which has various structures which are indicated to JP,3-200534,A, JP,5-16634,U or JP,5-44509,U, etc. are made.

[0010] For example, after what is indicated to above-mentioned JP,5-44509,U prints to the inside side of this film while forming the base material used as the label stuck on a hollow container with a polyester resin film homogeneous as a hollow container, it applies the paint containing the microcapsule which has air bubbles from on this printing side, and forms a label object with specific gravity smaller than the body of a container. And after setting said label object by the container, judging in a predetermined configuration and forming in the label of the heat shrink nature which can cylinder-like stick this label object, the predetermined location of a hollow container puts, heats and carries out the heat shrink of this label, and it is stuck.

[0011] Thus, as it described above, in order for a specific gravity difference to be able to classify a label part and a container part easily after crushing finely the hollow container of the empty which stuck the label, but to stick on a container, since the special paint is needed, there is a trouble that cost costs dearly. Then, these troubles are abolished, even if it does not use the special paint or adhesives, a label can be stuck on the drum section of a container, and as a thing which enabled it to exfoliate simply compared with the conventional thing, a heat shrink label is used so that it may see to JP,5-16634,U and others.

[0012] The hollow container using such a heat shrink label The label 46 for sticking on the drum section 44 of the hollow container 41 which consists of saturated polyester resin represented by polyethylene terephthalate and which carried out biaxial extension blow molding, as shown in drawing 11 It forms using the heat shrink nature film which consists of polyester resin homogeneous as a container, while printing and judging a trade name, the manufacturer, etc. on this film front face, perforation 46a is prepared, and it operates orthopedically on the label (the so-called shrink label) of the heat shrink nature formed in tubed. And although it is stuck on the drum wall side 44 and set to hollow container 41A by heating this label 46 using infrared-heating equipment etc., and making it contract after putting the label 46 made tubed in this way on the predetermined location which carried out the smooth field which sticks the label of the hollow

container 41 Since such a label is not stuck using adhesives like before, a label is easily separable from the body of a container.

[0013] Although a label is easily separable from the empty body of a container since adhesives are not used for each container which stuck a shrink label which was described above sticking a label etc. However, since it was having structure which the rib part which gives whenever [ absorption panel wall part Sagitta sturdy / for any container to give reduced pressure-proof nature or thermal resistance ] established and which cannot deform easily, it was difficult to compress simply so that the container which became empty is pressed and the volume becomes small. Then, it is easy to collect a lot of containers, and in order to be able to refine the collected container easily and to aim at reuse as a raw material, while attachment objects, such as a label stuck on the container, enable it to exfoliate simply, an appearance of the hollow container equipped with the reduced pressure-proof nature the body of a container enabled it to compress simply, and pressure resistance is desired.

[0014]

[Problem(s) to be Solved by the Invention] In order to collect efficiently the hollow containers discarded by the invention in this application serving as used in large quantities and for reuse to be able to do them While fabricating the volume of the hollow container which became empty so that it may become as small as possible, and it can compress easily It fabricates to the thin walled vessel which established the deformable absorption panel wall. the drum wall section of this hollow container -- heat -- Furthermore, it constitutes so that heat deformation of a container may be prevented with this label etc., while making the label stuck on this thin walled vessel into the structure where it can exfoliate easily. The collected container can be easily classified so that an impurity may not be contained, and it aims at offering the hollow container it enabled it to reuse as a raw material.

[0015]

[Means for Solving the Problem] The hollow container which carried out the shoulder, drum section and pars basilaris ossis occipitalis which were connected [ it / a top neck part and ], and tubed [ becoming ] is fabricated by the blow molding using thermoplastic synthetic resin. Said top neck part forms the thread part which screws a lid on a peripheral face while forming in the thickness of the reinforcement which does not carry out heat deformation. Moreover, said shoulder and pars basilaris ossis occipitalis are formed in the thin meat of extent which does not carry out thermal-expansion deformation. Furthermore, said drum section is formed in super-\*\*\*\* which prepared the lobe in which the expansion deformation by heating restoration is possible. While making covering objects, such as a label which formed opening in which said lobe can project while forming the hollow container in which heating restoration is possible and forming in the drum section of this hollow container tubed, put The hollow container of super-\*\*\*\* which stuck covering objects, such as a label, so that covering objects, such as a label, might be fixed by the lobe is constituted at the same time a vessel wall prevents deformation unnecessarily, when heating restoration of the solution is carried out into this container.

[0016]

[Embodiment of the Invention] Blow molding is carried out using polyethylene terephthalate resin or other thermoplastic synthetic resin. At the same time it fabricates in the heat-resistant hollow container 1 which carried out tubed [ which has a top neck part 2, a shoulder 3, a drum section 4, and a pars basilaris ossis occipitalis 5 ] said top neck part 2 While forming thickly, thread-part 2a is formed in a peripheral face. Moreover, said shoulder 3 and pars basilaris ossis occipitalis 5 It forms in the thin meat of extent which does not carry out thermal-expansion deformation, and to said drum section 4, when it fills up with an inner solution, the heating restoration which prepared lobe 4a which carries out bulge deformation, and was formed in super-\*\*\*\* also fabricates the possible body 1 of a hollow container.

[0017] Moreover, on the other hand, a trade name, the manufacturer or a pattern, a design, etc. are displayed on paper, a resin film, etc. by printing etc., and a label base material etc. is created, and while judging in the suitable form where this label base material etc. was set by the magnitude of a container, it forms in the piece 8 of a label which prepared opening 8a of the shape of two or more aperture aperture corresponding to the lobe prepared in the drum section of a container. And the piece 8 of a label judged as mentioned above joins both ends so that it may become the tube-like object which can be covered in a hollow container, and it forms them in the covering object or the attachment objects 6 which carried out tubed [ to which opening prepared in this piece 8 of a label corresponds to lobe 4a of said hollow container 1 ], such as a label.

[0018] the attachment objects 6, such as a label which prepared lobe 4a which carries out bulge deformation by heating or restoration in the container drum section fabricated as mentioned above, prepared said opening 6a in the hollow container 1 of super-\*\*\*\*, and was formed in tubed, -- said lobe 4a -- bulge -- it makes with

hollow container 1A in which the heating restoration of super-\*\*\*\* which was made to cover deformable and put covering objects, such as a label, is possible. If a lid is made to screw on a top neck part 2 and it seals after carrying out heat restoration of the liquid with which a soft drink and others were heat-sterilized into said hollow container 1A, then, said hollow container 1A by which heat restoration of the liquid was carried out Lobe 4a in which the bulge deformation prepared in the drum wall section is possible carries out bulge deformation so that it may project from opening 6a, such as said tubed label, and it is fixed so that a tubed covering object or the attachment objects 6, such as a label, may stop to this lobe 4a and it may not escape to it.

[0019]

[Example] It explains referring to a drawing about the invention in this application below based on one optimal example.

Although the example 1. invention in this application fabricates the heat-resistant tubed hollow container 1 which has the shoulder 3 and drum section 4 which connected [ it / a top neck part 2 and ] preforming which consists of polyethylene terephthalate resin by the usual biaxial extension blow molding, and a pars basilaris ossis occipitalis 5 As shown in drawing 1 , at this time said top neck part 2 Thread-part 2a which screws a lid on the peripheral face while forming in the thickness of extent which does not carry out heat deformation is formed. Moreover, said shoulder 3 and pars basilaris ossis occipitalis 5 It forms in thin meat in the range of extent which does not carry out thermal-expansion deformation, and further, said drum section 4 prepares lobe 4a which carries out bulge deformation with heating and projects in a part of drum wall section 4, and fabricates it in the tubed hollow container 1 in which the heat restoration formed in super-\*\*\*\*\* is possible while forming it in tubed [ to which the cross section carried out the square ] .

[0020] Lobe 4a which carries out bulge deformation with heating formed in said drum section 4 As shown in drawing 4 (a), when it is formed in the condition of having dented inside wall surface 4b in a part of drum wall 4 formed in square tubed super-\*\*\*\*\* and heat restoration of the liquid is carried out into a container, as shown in drawing 4 (b) When lobe 4a carries out heat bulge deformation in the direction of an arrow head, it is reversed, and it projects outside wall surface 4b, namely, it is formed so that it can deform into the condition which shows in drawing 5 (b) from the condition shown in drawing 5 (a). thus, the heat bulge prepared in the drum section 4 of a hollow container -- by forming deformable lobe part 4a in the inside from wall surface 4b of a drum section at the configuration where it dented in the shape of a taper, it is formed so that the covering objects 6, such as a label which carried out tubed, can be put easily on the drum section of the hollow container 1.

[0021] Moreover, the invention in this application displays a trade name, the manufacturer, notes or a pattern, a design, etc. on paper, a resin film or a metallic foil used as the base material which forms a label and a vignette, etc. by printing etc., and makes covering base materials, such as a label aligned with the container used as the candidate for use, to them. And said attachment base material with which printing etc. was performed processes it into the predetermined part of this cut-out covering base material by piercing opening 8a in which lobe 4a which was prepared in the drum section 4 of said hollow container 1, and which carries out bulge deformation can project in the shape of an aperture aperture, and produces the pieces 8 of covering, such as a label, while cutting it out in the configuration and the magnitude suitable for the container for use, as shown in drawing 3 . Thus, it bends so that it may become the tube-like object of the square which can be covered to the drum section 4 of the hollow container 1, it joins so that the both-ends side may be doubled, and the piece 8 of covering judged and produced according to the container for use is fabricated on the covering objects 6, such as a label which carried out the shape of an rectangular pipe, as shown in drawing 1 .

[0022] The covering objects 6, such as a label fabricated by tubed [ square ] as mentioned above, are put on the tubed body 1 of a hollow container which prepared lobe 4a which carries out heat bulge deformation in the drum wall section 4, and was fabricated by super-\*\*\*\*, as described above, and they are fabricated by hollow container 1A which carried out tubed [ in which the heat restoration covered with the covering objects 6, such as a label, is possible / of super-\*\*\*\* ]. Thus, although the hollow container 1 tends to be heated from the interior, tends to expand and tends to transform liquids, such as a heat-sterilized soft drink, into hollow container 1A of super-\*\*\*\* with which the covering objects 6, such as a label, were covered if heat restoration is carried out as shown in drawing 2 </A> Since the drum section 4 is bound tight with the tubed attachment object 6 as shown in drawing 5 (b), lobe 4a in which bulge deformation of the condition of having dented in the drum wall inside is possible will be projected from opening 6a which reversed outside and was prepared in the covering objects 6, such as a label, without the ability carrying out expansion deformation.

[0023] And although it is fixed so that the attachment object 6 which made tubed lobe 4a which carried out the reversal protrusion from opening 6a, such as a label, may be stopped and it may not escape from hollow container 1 body at the same time the covering objects 6, such as the above mentioned label, will be stuck to the 4th page of the drum wall of the hollow container 1, as shown in drawing 2 If the covering objects 6, such as a label, are formed with the resin film of heat shrink nature, it can fix more closely. Thus, heat restoration of the liquids, such as a soft drink of juice and others, was able to be carried out, to heat-resistant tubed hollow container 1A of super-\*\*\*\* on which the covering objects 6, such as a label, were put, after screwing on and sealing the lid to the top neck part 2 of this hollow container, it was able to cool, and the product which is not deforming the configuration of this hollow container was able to be obtained.

[0024] In the above-mentioned example, although the hollow container of super-\*\*\*\* with which the drum section cross section carried out tubed [ square ] as a container configuration was used, the invention in this application is not restricted to the hollow container of such a configuration, and even if it is the hollow container of the thin meat which carried out tubed [ elliptical ], it can be fabricated [ that the drum section cross section of a container is circular, or ] like the above-mentioned invention. Moreover, even if the hollow container fabricated as mentioned above does not necessarily carry out heat restoration of the contents liquid, also when ordinary temperature restoration is carried out, lobe 4a in which bulge deformation is possible can carry out a reversal protrusion outside with the internal pressure of carbon dioxide gas, an inner solution, etc., and it can fix the attachment objects 6, such as a label.

[0025] When an example 2. drum section cross section is the light-gage hollow container of the shape of a circular cylinder As preforming which consists of polyester resin, such as PET, is fabricated in a cylinder-like hollow container by the usual biaxial extension blow molding like the case of the above-mentioned prismatic form container and it is shown in drawing 6 A top neck part 12 forms thread-part 12a which screws a lid on a peripheral face at the same time it fabricates it so that it may become thick. Moreover, a shoulder 13 and a pars basilaris ossis occipitalis 14 are fabricated on the thin meat of extent which does not carry out thermal-expansion deformation. While fabricating the cylinder-like drum section 14 to super-\*\*\*\*, this a part of drum wall section 14 is fabricated in the configuration where it dented from the wall surface to the inside, and the hollow container 12 which carried out the shape of a cylinder of super-\*\*\*\* which formed lobe 14a so that bulge deformation might be carried out with thermal expansion or a pressure and it might project is formed.

[0026] On the other hand, like the case where the attachment object of the shape of said rectangular pipe is formed, double a trade name, the manufacturer, notes, etc. with the container of the purpose of use, indicate to paper, a resin film, etc. used as the base material of a label or a vignette object by printing, and it makes with covering base materials, such as a label. Then, while judging in the configuration suitable for the container which uses this attachment base material, it is processed into the predetermined part of the cut-out attachment base material by piercing opening 16a in which lobe 14a which was prepared in the drum section of said hollow container, and which carries out heat bulge deformation can project in the shape of an aperture aperture, and covering objects, such as a label, are produced. Thus, the produced attachment object is made to curve so that it may become the cylindrical shape which can cover the drum section of a hollow container, and the both-ends side is piled up, and it joins, and fabricates on the attachment objects 16, such as a label which carried out the shape of a cylinder.

[0027] As the covering objects 16, such as a label fabricated in the shape of a cylinder as mentioned above, were described above, the drum section of the cylinder-like hollow container 11 which prepared lobe 14a which carries out heat bulge deformation in a part of drum wall section, and was fabricated to super-\*\*\*\* is covered, and hollow container 11A of super-\*\*\*\* which carried out the shape of a cylinder in which lobe 14a on which covering objects, such as a label, were put can bulge is formed. And although said hollow container tends to carry out expansion deformation in response to the internal pressure by restoration fluid pressure, carbon dioxide gas, etc. if ordinary temperature restoration of the liquids, such as a soft drink heat-sterilized by hollow container 11A of super-\*\*\*\* with which covering objects, such as said label, were covered, is carried out Since the outside is covered with the cylinder-like attachment object 16 and the drum wall section 14 whole cannot carry out expansion deformation As the two-dot chain line showed to drawing 7, will be projected from opening 16a which lobe 14a in which the bulge deformation formed in the condition of having dented to the inside in the light-gage drum wall 14 section is possible reversed, and was prepared in the covering objects 16, such as a label.

[0028] And the covering objects 16, such as a tubed label, are stopped by the lobe 14a part which carried out the reversal protrusion from opening 16a, and the covering objects 16, such as the above mentioned label, are fixed so that it may not escape from the drum wall side of the hollow container 11, at the same time it



will be stuck to drum wall 14 external surface of the hollow container 11. Thus, ordinary temperature restoration of the liquids, such as a soft drink containing carbonic acid and an alcoholic beverage, was carried out, and after screwing on and sealing the lid to the top neck part 12, even if it carried out the mothball to heat-resistant cylindrical hollow container 11A of super-\*\*\*\* on which the covering objects 16, such as a label, were put, to it, the product of the right form which is not deforming the drum wall of a container was able to be obtained.

[0029] Usual carries out biaxial extension blow molding of the preforming which consists of polyolefin resin, such as polypropylene resin, like the case of an example 3. aforementioned cylinder-like light-gage hollow container. As it fabricates in the tubed hollow container 21 with which the drum section cross section carried out the ellipse form and was shown in drawing 8 A top neck part 22 forms thread-part 22a which screws a lid on a peripheral face while fabricating so that it may become thick. Moreover, a shoulder 23 and a pars basilaris ossis occipitalis 24 are fabricated on the thin meat of extent which does not carry out thermal-expansion deformation. While fabricating the tubed drum section 24 to super-\*\*\*\*\*, this a part of drum wall section 24 is fabricated in the configuration where it dented from the wall surface to the inside, lobe 24a which can project according to the bulge deformation by thermal expansion or internal pressure is formed, and hollow container 21 tubed body in which heat restoration etc. is possible is formed.

[0030] Moreover, like the case where the attachment object of the shape of said cylinder is formed, while judging on the resin film of heat shrink nature at the configuration suitable for the container which uses attachment base materials, such as a label which indicated the label, the vignette, etc. by printing according to the container of the purpose of use It is processed into the predetermined part of the cut-out attachment base material by piercing opening 26a in which lobe 24a which was prepared in the drum section of said body of a hollow container, and which carries out heat bulge deformation can project in the shape of an aperture aperture, and a covering object or attachment objects, such as a label, are produced. Thus, it is made to curve so that it may become the ellipse cartridge which can cover the drum section of the hollow container which carried out ellipse tubed for the produced attachment object, and the both-ends side is piled up, and it joins, and fabricates on the covering objects 26, such as a label which carried out the ellipse-like cartridge.

[0031] The covering objects 26, such as a label fabricated by the ellipse-like cartridge as mentioned above As described above, after covering the drum section of the cylinder-like hollow container 21 which prepared lobe 24a which carries out heat bulge deformation in a part of drum wall section 24, and was fabricated to super-\*\*\*\* Hollow container 21A of super-\*\*\*\* which carried out the ellipse tubed which heats the covering objects 26, such as this label, at an infrared heater, was made to contract, and was covered is formed.

[0032] And with a liquid, if said hollow container 21A of super-\*\*\*\* with which covering objects, such as a label, were covered is filled up with liquids, such as an oil of salad oil and others, although the drum section of thin meat tends to carry out bulge deformation with a pressure from the interior Since the drum wall section 24 is bound tight from an outside with the cylinder-like covering object 26 and cannot carry out expansion deformation It will be in the condition of having projected from opening 26a which lobe 24a in which the bulge deformation in the condition of having dented inside the drum wall 24 is possible as a two-dot chain line shows to drawing 9 reversed, and was prepared in the covering objects 26, such as a label. The attachment objects 26, such as a tubed label, are stopped by this lobe 14a part, and it sticks to a drum wall side, and it is fixed so that it may not escape from the drum wall 24 section of the hollow container 21.

[0033] In heat-resistant hollow container 21A of super-\*\*\*\* on which the covering objects 26, such as a label, were put as mentioned above Also when heat restoration of the liquids, such as a soft drink, was carried out to the interior like an example 1, after screwing on and sealing the lid to the top neck part 22 of this container, even if it was cooled, the product which carried out the right form which the wall of this hollow container 21A is not deforming was able to be obtained.

[0034] As mentioned above, as stated, while the invention in this application forms the drum wall section of a container in super-\*\*\*\* compared with the conventional thing in the hollow container of the thin meat which fabricated thermoplastic synthetic resin to tubed by biaxial extension blow molding A deformable lobe is formed. the condition of having dented from the wall surface to the inside in this a part of drum wall section -- forming -- thermal expansion or internal pressure -- bulge -- While forming in tubed covering objects, such as a label put on said hollow container as absorbs the stress which is going to carry out expansion deformation, said hollow container is made to put the thing in which opening in which the lobe a hollow container carries out [ a lobe ] bulge deformation projects was formed on this covering object. Thermal resistance, A pressure-resistant hollow container is formed.



[0035] Therefore, the hollow container of the invention in this application on which the covering object or attachment objects which were fabricated by tubed as described above, such as a label, were put Since neither the rib for reinforcement nor the panel wall for deformation force absorption is established in case the inner solution held in the container is exhausted and it is discarded Since this container can be easily crushed only by pressing the drum section of a hollow container lightly and compressing it and adhesives are not used, covering objects, such as a label which carried out tubed, can be made to exfoliate easily from the wall surface of a container.

[0036] and said hollow container -- an inner solution -- being filled up -- said bulge, although the hollow container of super-\*\*\*\* which stuck attachment objects, such as a label, as [ fixed / could project the deformable lobe, and / in total, so that said attachment object stopped and might not fall out to a lobe ] is formed If said covering object is formed using the resin film which consists of the same quality of the material as the body of a hollow container, in case it will carry out reuse, using the collected container as a raw material, since it can prevent that an impurity is mixed, it can reproduce efficiently.

[0037]

[Effect of the Invention] Even if it does not make the hollow container with the label of the invention in this application into the configuration which has special structure It can fabricate in the lightweight container of super-\*\*\*\* which has expansion-proof deformans. and in case the hollow container with a label which could manufacture simply and cheaply the container which can put a label etc., without using adhesives, and became empty is discarded Since a container can be compressed by the weak force, can make the volume small and a label etc. can be easily separated from a container Since the container which could collect empty containers efficiently in large quantities, and collected them further is very easy to carry out reuse as a raw material, it can hold down cost low.

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[Translation done.]

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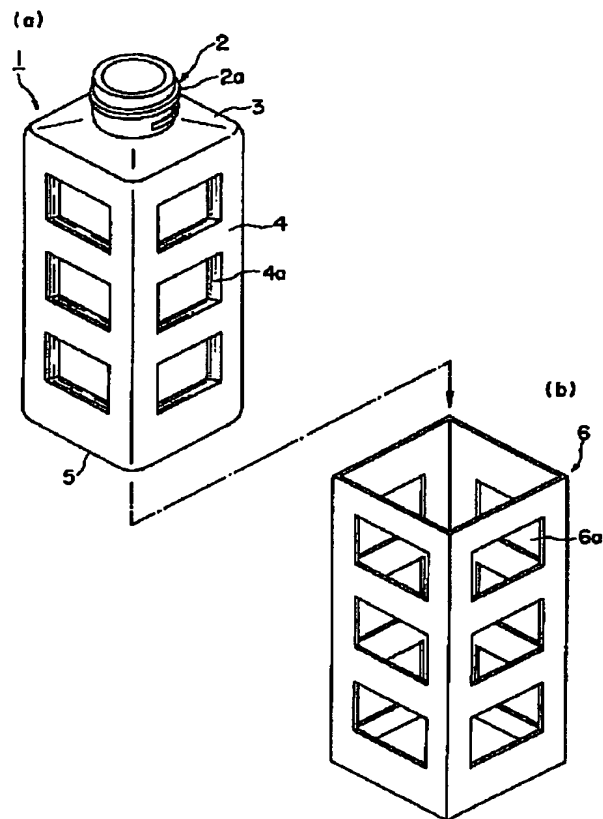
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2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

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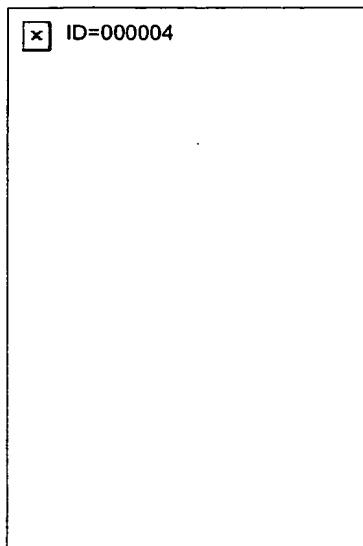
DRAWINGS

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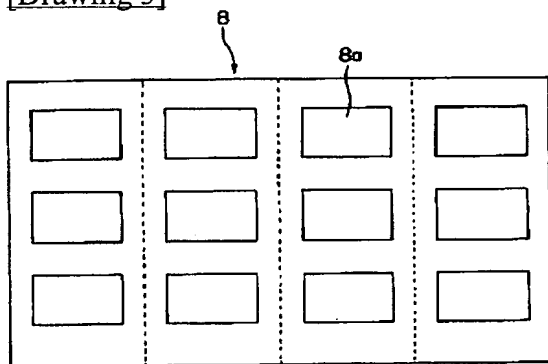
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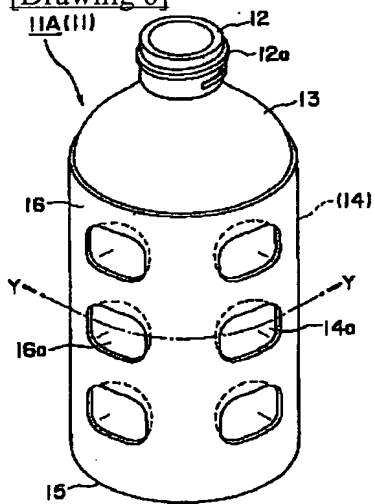
[Drawing 2]



[Drawing 3]



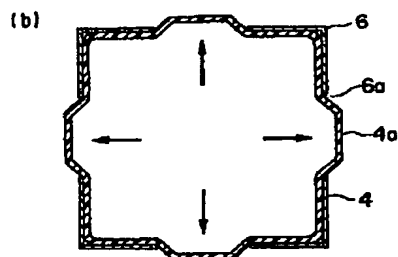
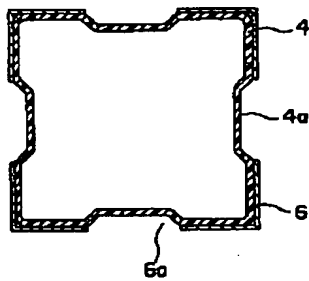
[Drawing 6]



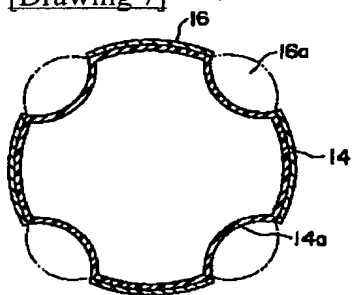
[Drawing 4]

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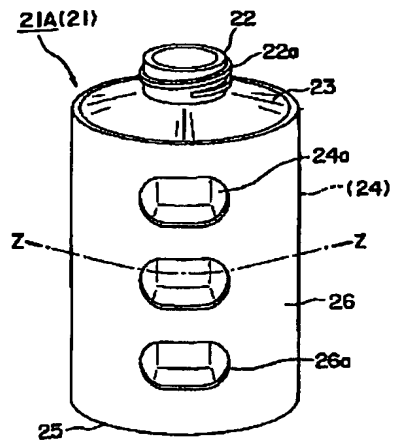
[Drawing 5]  
(a)



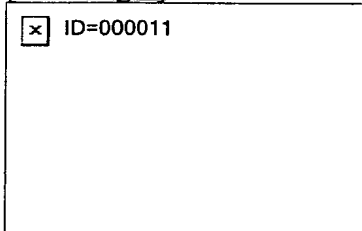
[Drawing 7]



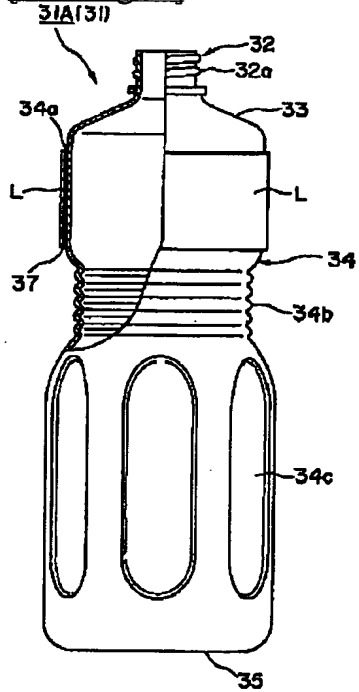
[Drawing 8]



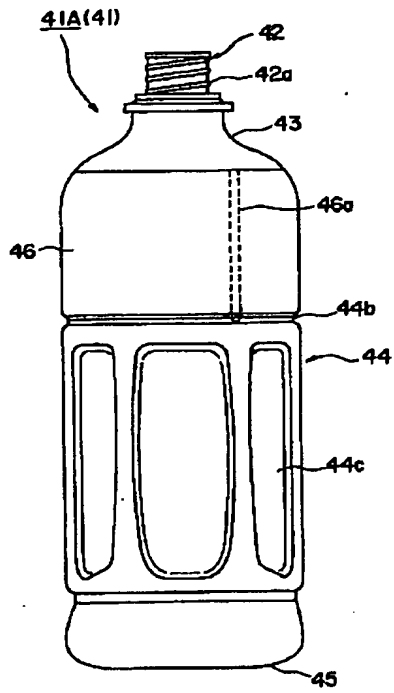
[Drawing 9]



[Drawing 10]



[Drawing 11]



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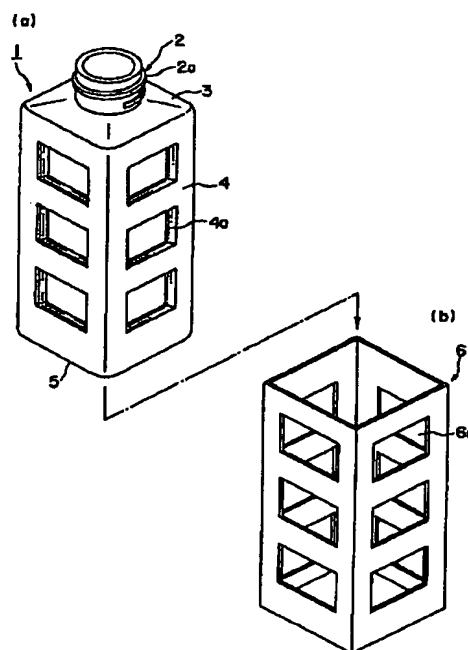
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(54)【発明の名称】 筒状をした被覆体と該被覆体を被着した超薄肉の中空容器

#### (57)【要約】

【課題】 廃棄される使用済みの中空容器を、効率よく回収して、再生利用するために、中空容器を簡単に圧縮して体積を小さくできるように形成して、該中空容器の胴壁部に被着されたラベル等は簡単に剥離できると共に、該ラベル等により容器の熱変形を防止するような構造にする。

【解決手段】 口頸部2とそれに連設する肩部3と胴部4と底部5とかなる筒状をした中空容器本体1を熱可塑性合成樹脂を用いてブロー成形して、前記肩部及び底部は、熱膨張変形をしない程度の薄肉に形成すると共に、前記胴部は、熱充填時に膨出変形可能な突出部4aを胴壁面4bより内側に凹ませて超薄肉状に形成して超薄肉の中空容器となして、前記胴部には、開口部6aを設けた筒状をしたラベル等の被覆体6を前記突出部4aが突出可能に被着せしめて、膨張による容器の不要な変形を防止すると共に前記開口部6aから突出部4aを膨出変形せしめて被覆体6を係止することによりラベル等の被覆体6を設けた超薄肉の中空容器1Aを構成する。





## 【特許請求の範囲】

【請求項1】 筒状をした中空容器の胴壁部に被着するラベル等の被覆体であって、該被覆体は中空容器の胴壁の形状に合わせて筒状体に形成されると共に、該貼着体の筒状面には中空容器の胴壁が膨出変形する部分が突出するための開口部が形成されていることを特徴とする中空容器に被着可能な筒状被覆体。

【請求項2】 前記被覆体は、紙を用いて形成されていることを特徴とする請求項1に記載する中空容器に被着可能な筒状被覆体。

【請求項3】 前記被覆体は、合成樹脂フィルムを用いて形成されていることを特徴とする請求項1に記載する中空容器に被着可能な筒状被覆体。

【請求項4】 口頸部とそれに連設する肩部と胴部と底部とからなる筒状をした中空容器を熱可塑性合成樹脂を用いてブロー成形することにより、前記肩部及び底部は、熱膨張変形をしない程度の薄肉に形成して、前記胴部は、膨出変形が可能な突出部を壁面より内側に凹ませて設けて超薄肉に形成すると共に、筒状に形成したラベル等の被覆体を被着できるように形成してなることを特徴とする超薄肉の中空容器。

【請求項5】 口頸部とそれに連設する肩部と胴部と底部とかなる筒状をした中空容器を熱可塑性合成樹脂を用いてブロー成形することにより、前記肩部及び底部は、熱膨張変形をしない程度の薄肉に形成すると共に、前記胴部は、膨出変形する突出部を壁面より内側に凹ませて超薄肉に形成した超薄肉の中空容器の胴部に、筒状に形成したラベル等の被覆体を前記突出部が突出可能に被着せしめて、膨張による不要な変形を防止すると共に被覆体に設けた開口部に膨出変形した突出部を係止して被覆体を固定してなることを特徴とするラベル等の被覆体を設けた超薄肉の中空容器。

【請求項6】 前記中空容器は、2軸延伸ブロー成形して耐熱性を有するように形成されてなることを特徴とする請求項4乃至5に記載するラベル等の被覆体を設けた超薄肉の中空容器。

【請求項7】 前記被覆体は、中空容器本体と同一の材質を用いて構成されてなることを特徴とする請求項5乃至6に記載するラベル等の被覆体を設けた超薄肉の中空容器。

## 【発明の詳細な説明】

## 【0001】

【発明の属する技術分野】本願発明は、中空容器の胴壁に貼着したラベル等を、容器から簡単に剥離して、分別して回収することができる合成樹脂製中空容器に係わり、中でも、容器の胴壁部に容器内の圧力変形を吸収するパネル壁を設けた中空容器に、簡単に分離可能なラベル等を被着した薄肉中空容器に関するものである。

## 【0002】

【従来の技術】従来から酒や醤油、食用油、清涼飲料等

の食品を収容する容器としては、衛生面や中身が確認できて、且つ、再利用ができることからガラス壺が用いられてきたが、近年になって新しい合成樹脂材料の出現と共に、それを用いた中空容器の成形技術の進歩に伴って、軽量で割れにくくて種々の中空容器が成形可能になり、合成樹脂製の中空容器がガラス壺に代わって用いられるようになった。

【0003】その後、ポリエチレンテレフタレート（PET）樹脂を用いて2軸延伸ブロー成形された中空容器は、極めて高い透明性と光沢とを有すると共に可塑剤等の不純物を含有してなくて、ガスバリアー性、内容物の保存性にも優れていることから各種飲料水や調味料、酒類その他の食品用容器として広い範囲で用いられるようになってきている。それと同時に、社会状況の変化につれて、生産性や利便性が求められるようになり、また、食生活の面でも変化が見られるようになって、既成の清涼飲料やスポーツ飲料等が多量に消費されるようになってきた。

【0004】ところで、このような生活環境が変化する中で、合成樹脂製の中空容器に収容された既成の食品が大量に消費されるようになるのに伴って、使用済みとなった空の容器がゴミとして大量に排出されるようになった。そして、これらの大量に排出された合成樹脂容器は、一般ゴミのように分解するのは困難で、また、焼却処理をすれば発熱量が大きくなることから、従来のごみ処理と同様な方法で処理するには、多大な処理費を要すると同時に、生活環境を汚染する恐れがある等の理由から種々の社会問題ともなっている。

【0005】そこで、このような環境汚染や資源の無駄遣い等の社会問題を惹起する原因ともなっている使用済みの合成樹脂容器の処理については、資源の有効利用という見地から容器リサイクル法が施行されることになった。しかし、使用済みになって廃棄される容器を資源として円滑に再利用するためには、空になった容器が大量に、且つ、効率よく回収できると共に、樹脂原料として使用可能なように分別、精製できることができて、しかも、低コストで再生利用できることが必要条件である。従って、中空容器を効率よく回収するためには、空になった容器の体積をできるだけ小さくしてから廃棄されることが望まれるし、また、原料として再利用するには、回収した容器が不純物を含まないように簡単に分別できるようなものでなければならない。

【0006】ところで、色々な合成樹脂製の中空容器が多用されるようになるにつれて、広く市販される商品の中には、ジュースその他の内容物を加熱殺菌して熱い状態のまま中空容器内に注入した、いわゆる加熱充填をしたものでなければならないがあり、これらの容器は、内容物を加熱充填して密封された後で必ず冷却されるので、内容積が縮小して容器内が減圧状態になるのに伴って容器の壁面が変形し易いので、そのような変形を防止

する必要がある。そこで、容器の壁面が変形して外観の見栄えが損なわれないようにするために、実開昭56-109905号や実開昭57-199022号公報等に記載されているように、容器の壁面が変形しないように耐減圧性と強度を有するような形状に成形されたものが用いられるようになっている。

【0007】従来から広く用いられている上記したように胴壁部に耐減圧構造を施した耐熱性の中空容器に於いては、容器の座屈強度を高めるために胴壁部に周方向の凹凸状のリップを設けると共に、容器の内容積の変化に伴う内圧の変化を吸収するために胴壁の一部が変形する吸収パネル壁を設けたものが一般的であった。そして、このような耐減圧容器は、通常は胴部の外壁面に容器内の内容物や品質、製造元その他の事項を明記したラベル等が貼り付けられて市販されるのが一般的であることから、前記したような従来の中空容器31に於いては、図10に示すように、強度を付与するための凹凸状をしたリップ34bを胴部34の周方向に形成すると共に該リップを避けた胴部上下に吸収パネル壁34cを形成すると同時に、前記リップ34bや吸収パネル壁34cを形成した以外の部分にラベル等Lを貼り付けるための平坦な面34aを胴部34に形成しておいて、当該貼着部分にラベル等Lを貼り付けるようになっている

【0008】しかし、上記のような構造をした耐圧性の中空容器31には、補強リップ34bや吸収パネル壁34cが設けてあり、空になった容器を圧縮して体積を小さくすることが容易ではないので、体積のある空の容器を大量に回収するのが難しく、また、胴部34にラベル等Lを貼り付け易くした平坦な特別な部分を設けておかなければならず、更に、胴部34の壁面に貼着されたラベル等Lは、剥がれにくくするために接着剤37を用いて貼り付けられたり、また、ラベルLの材質に容器の材質とは異なる色々な材質や印刷インクが用いられているのが一般的であったことから、回収した容器を粉砕して不純物を含まないように分別するのが容易ではなくて、原料として再利用できるように再生には手間がかかり過ぎた。従って、廃棄される容器の構成が上記したような従来のままの中空容器31であっては、空になって廃棄された容器を大量に、且つ、効率よく回収して、原料として再利用するための要件を満足させることは困難である。

【0009】そこで、耐圧及び耐熱構造をした中空容器が、使用済みとなって廃棄されたものを、効率よく大量に回収することができて、且つ、破碎後にラベル等の不純物を容易に分離することができて、原料として簡単に再利用することができるようにした中空容器に関する研究がなされた結果、特開平3-200534号や実開平5-16634号公報あるいは実開平5-44509号公報等に記載するような種々の構造をした容器についての提案が多数なされている。

【0010】例えば、上記実開平5-44509号公報に記載するものは、中空容器に貼着するラベルにする基材を、中空容器と同質のポリエステル樹脂フィルムで形成すると共に、該フィルムの内面側に印刷を施した後に、該印刷面の上から気泡を有するマイクロカプセルを含有する塗布剤を塗布して、容器本体よりも比重が小さいラベル体を形成したものである。そして、前記ラベル体を容器に合わせて所定形状に裁断した後、該ラベル体を円筒状の貼着可能な熱収縮性のラベルに形成してから、該ラベルを中空容器の所定位置に被せて、加熱して熱収縮せしめて貼着する。

【0011】このようにしてラベルを貼着した空の中空容器は、細かく破碎してから比重差によりラベル部分と容器部分とを容易に分別することはできるが、しかし、上記したようにして容器に貼着するには、特別な塗布剤を必要とするのでコストが高つくという問題点がある。そこで、これらの問題点をなくして、特別な塗布剤や接着剤を用いなくても容器の胴部にラベルを貼着できるようにしたものとして、実開平5-16634号公報その他に見るように熱収縮ラベルが用いられるようになっている。

【0012】このような熱収縮ラベルを用いた中空容器は、図11に示すように、ポリエチレンテレフタレートに代表される飽和ポリエステル樹脂からなる2軸延伸ブロー成形した中空容器41の胴部44に貼着するためのラベル46を、容器と同質のポリエステル樹脂からなる熱収縮性フィルムを用いて形成して、該フィルム表面に商品名や製造元等を印刷して裁断すると共にミシン目46aを設けておいて、筒状に形成した熱収縮性のラベル(所謂、シュリンクラベル)に整形する。そして、このように筒状にしたラベル46は、中空容器41のラベルを貼着する滑らかな面をした所定位置に被せてから、該ラベル46を赤外線加熱装置等を用いて加熱して収縮せしめることにより胴壁面44に貼着されて中空容器41Aとなるが、このようなラベルは従来のように接着剤を用いて貼着されていないので、ラベルを容器本体から容易に分離することができる。

【0013】上記したようなシュリンクラベル等を貼着した容器は、いずれもラベル等を貼るのに接着剤を使用していないので、空の容器本体からラベルを容易に分離することができるが、しかし、いずれの容器も耐減圧性や耐熱性を持たせるための吸収パネル壁部分や座屈強度を付与するリップ部分等が設けた変形しにくい構造をしているので、空になった容器を押圧して容積が小さくなるように簡単に圧縮することは困難であった。そこで、大量の容器を回収するのが容易で、且つ、回収した容器を簡単に精製できて、原料として再利用を図るためには、容器に貼り付けられたラベル等の貼着体が簡単に剥離できるようにすると共に、容器本体が簡単に圧縮できるよ

うにした耐減圧性と耐圧性とを備えた中空容器の出現が望まれている。

#### 【0014】

【発明が解決しようとする課題】本願発明は、使用済みとなって廃棄される中空容器を、大量に効率よく回収して、再生利用ができるようにするために、空になった中空容器の体積をできるだけ小さくするように簡単に圧縮することができるように成形すると共に、該中空容器の胴壁部に熱変形可能な吸収パネル壁を設けた薄肉容器に成形して、更に、該薄肉容器に貼着するラベル等を簡単に剥離することができる構造にすると共に該ラベル等により容器の熱変形を防止するように構成して、回収した容器は不純物が含まれないように簡単に分別できて、原料として再利用できるようにした中空容器を提供することを目的とする。

#### 【0015】

【課題を解決するための手段】口頸部とそれに接続した肩部と胴部と底部とかなる筒状をした中空容器を熱可塑性合成樹脂を用いたブロー成形により成形して、前記口頸部は熱変形しない強度の肉厚に形成すると共に外周面に蓋体を螺着するねじ部を形成して、また、前記肩部及び底部は熱膨張変形をしない程度の薄肉に形成して、更に、前記胴部は加熱充填による膨張変形が可能な突出部を設けた超薄肉に形成して、加熱充填が可能な中空容器を形成して、該中空容器の胴部に筒状に形成すると共に前記突出部が突出可能な開口部を形成したラベル等の被覆体を被着せしめると共に、該容器内に溶液を加熱充填した際に容器壁が不要に変形を防止すると同時に突出部によりラベル等の被覆体を固定するようにラベル等の被覆体を貼着した超薄肉の中空容器を構成する。

#### 【0016】

【発明の実施の形態】ポリエチレンテレフタレート樹脂やその他の熱可塑性合成樹脂を用いてブロー成形して、口頸部2と肩部3と胴部4と底部5とを有する筒状をした耐熱性の中空容器1に成形すると同時に、前記口頸部2は、肉厚に形成すると共に外周面にねじ部2aを形成し、また、前記肩部3及び底部5は、熱膨張変形をしない程度の薄肉に形成し、前記胴部4には、内溶液が充填された時に膨出変形する突出部4aを設けて超薄肉に形成した加熱充填も可能な中空容器本体1を成形する。

【0017】また、その一方では、紙や樹脂フィルム等に商品名や製造元、あるいは、模様やデザイン等を印刷等により表示してラベル基材等を作成して、該ラベル基材等を容器の大きさに合わせた適当な形に裁断すると共に容器の胴部に設けた突出部に対応する複数の窓開き状の開口部8aを設けたラベル片8に形成する。そして、前記のように裁断されたラベル片8は、中空容器に被覆可能な筒状体になるように両端を接合して、該ラベル片8に設けた開口部が前記中空容器1の突出部4aに対応するような筒状をしたラベル等の被覆体または貼着体6

に形成する。

【0018】上記のように成形した容器胴部に加熱や充填により膨出変形する突出部4aを設けて超薄肉の中空容器1に、前記開口部6aを設けて筒状に形成したラベル等の貼着体6を前記突出部4aが膨出変形可能に被着せしめて、ラベル等の被覆体を被着した超薄肉の加熱充填が可能な中空容器1Aとなす。続いて、清涼飲料その他の加熱殺菌された液体を前記中空容器1A内に熱充填してから口頸部2に蓋体を螺着せしめて密封すると、液体が熱充填された前記中空容器1Aは、胴壁部に設けられた膨出変形が可能な突出部4aが、前記筒状ラベル等の開口部6aから突出するように膨出変形して、該突出部4aにラベル等の筒状被覆体または貼着体6は係止して抜けないように固定される。

#### 【0019】

【実施例】以下に、本願発明について、最適な一つの実施例に基づいて図面を参照しつつ説明する。

実施例1. 本願発明は、ポリエチレンテレフタレート樹脂からなるプリフォームを通常の2軸延伸ブロー成形により、口頸部2とそれに接続した肩部3と胴部4と底部5とを有する耐熱性の筒状の中空容器1を成形するが、この時、図1に示すように、前記口頸部2は、熱変形しない程度の肉厚に形成すると共にその外周面には蓋体を螺着するねじ部2aを形成して、また、前記肩部3及び底部5は、熱膨張変形をしない程度の範囲で薄肉に形成して、更に、前記胴部4は、断面が四角形をした筒状に形成すると共に、加熱により膨出変形して突出する突出部4aを胴壁部4の一部に設けて、超薄肉状に形成した熱充填が可能な筒状の中空容器1に成形する。

【0020】前記胴部4に設けた加熱により膨出変形する突出部4aは、図4(a)に示すように、四角形筒状の超薄肉状に形成した胴壁4の一部を壁面4bよりも内側に凹んだ状態に形成されていて、容器内に液体が熱充填された時に、図4(b)に示すように、突出部4aが矢印方向に熱膨出変形することにより反転して、壁面4bよりも外側へ突出する、即ち、図5(a)に示す状態から図5(b)に示す状態に変形できるように形成される。このように、中空容器の胴部4に設けた熱膨出変形可能な突出部分4aを胴部の壁面4bから内側ヘテーパ一状に凹んだ形状に形成しておくことにより、筒状をしたラベル等の被覆体6を中空容器1の胴部の上に簡単に被せることができるように形成されている。

【0021】また、本願発明は、ラベルや装飾模様を形成する基材となる紙や樹脂フィルムまたは金属箔等に商品名や製造元、注意書き、あるいは、模様やデザイン等を印刷等により表示して、使用対象となる容器に合わせたラベル等の被覆基材に仕上げる。そして、印刷等が施された前記貼着基材は、図3に示すように、使用対象容器に合った形状と大きさに裁断すると共に、裁断された該被覆基材の所定部分に前記中空容器1の胴部4に設け

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た膨出変形する突出部4aが突出可能な開口部8aを窓開き状に打ち抜き加工をしてラベル等の被覆片8を作製する。このようにして、使用対象容器に合わせて裁断されて作製された被覆片8は、中空容器1の胴部4に被覆可能な四角形の筒状体となるように折り曲げて、その両端辺を合わせるように接合して、図1に示すように、角筒状をしたラベル等の被覆体6に成形する。

【0022】上記のようにして四角形の筒状に成形されたラベル等の被覆体6は、前記したように胴壁部4に熱膨出変形する突出部4aを設けて超薄肉に成形された筒状の中空容器本体1に被せられて、ラベル等の被覆体6で被覆された熱充填が可能な超薄肉の筒状をした中空容器1Aに成形される。このようにしてラベル等の被覆体6が被覆された超薄肉の中空容器1Aに、図2に示すように、加熱殺菌された清涼飲料等の液体を熱充填されると、中空容器1は内部から加熱されて膨張して変形しようとするが、図5(b)に示すように、筒状の貼着体6により胴部4が締めつけられているので膨張変形することができず、胴壁内側に凹んだ状態の膨出変形が可能な突出部4aが外側へ反転してラベル等の被覆体6に設けた開口部6aから突出した状態になる。

【0023】そして、前記したラベル等の被覆体6は、図2に示すように、中空容器1の胴壁4面に密着した状態になると同時に、ラベル等の開口部6aから反転突出した突出部4aに筒状をした貼着体6は係止されて、中空容器1本体から抜けられないように固定されるが、ラベル等の被覆体6を熱収縮性の樹脂フィルムで形成しておけばより緊密に固定することができる。このようにしてラベル等の被覆体6が被着された超薄肉の耐熱性の筒状中空容器1Aに、ジュースその他の清涼飲料等の液体を熱充填して、該中空容器の口頸部2に蓋体を螺着して密封してから冷却して、該中空容器の形状が変形していない製品を得ることができた。

【0024】上記実施例に於いては、容器形状として胴部断面が四角形の筒状をした超薄肉の中空容器を用いたが、本願発明は、このような形状の中空容器に限られるものではなくて、容器の胴部断面が円形もしくは楕円形状の筒状をした薄肉の中空容器であっても、上記発明と同じようにして成形することが可能である。また、前記のように成形した中空容器は、内容液を必ずしも熱充填しなくても、常温充填した場合にも、炭酸ガスや内容液等の内圧により膨出変形が可能な突出部4aが外側へ反転突出してラベル等の貼着体6を固定することができる。

【0025】実施例2. 胴部断面が円形である円筒状の薄肉中空容器の場合には、上記した角柱状容器の場合と同じように、PET樹脂等のポリエステル樹脂からなるプリフォームを通常の2軸延伸ブロー成形により円筒状の中空容器に成形して、図6に示すように、口頸部12は肉厚になるように成形すると同時に、外周面には蓋体

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を螺着するねじ部12aを形成して、また、肩部13及び底部14は熱膨張変形をしない程度の薄肉に成形し、そして、円筒状の胴部14を超薄肉に成形すると共に該胴壁部14の一部を壁面から内側へ凹んだ形状に成形して、熱膨張や圧力により膨出変形して突出するように突出部14aを形成した超薄肉の円筒状をした中空容器12を形成する。

【0026】その一方で、前記角筒状の貼着体を形成した場合と同じように、ラベルや装飾模様体の基材となる紙や樹脂フィルム等に商品名や製造元、注意書き等を使用目的の容器に合わせて印刷表示をしてラベル等の被覆基材となして、続いて、該貼着基材を使用する容器に合った形状に裁断すると共に、裁断された貼着基材の所定部分に前記中空容器の胴部に設けた熱膨出変形する突出部14aが突出可能な開口部16aを窓開き状に打ち抜き加工をしてラベル等の被覆体を作製する。このようにして作製された貼着体を、中空容器の胴部を被覆可能な円筒形となるように湾曲せしめて、その両端辺を重ね合わせて接合して、円筒状をしたラベル等の貼着体16に成形する。

【0027】上記のようにして円筒状に成形されたラベル等の被覆体16を、前記したように胴壁部の一部に熱膨出変形する突出部14aを設けて超薄肉に成形した円筒状の中空容器11の胴部に被せて、ラベル等の被覆体6が被着された突出部14aが膨出可能な円筒状をした超薄肉の中空容器11Aを形成する。そして、前記ラベル等の被覆体6が被覆された超薄肉の中空容器11Aに、加熱殺菌された清涼飲料等の液体を常温充填すると、前記中空容器は充填液圧や炭酸ガス等による内部圧力を受けて膨張変形しようとするが、胴壁部14全体は円筒状の貼着体16により外側が覆われていて膨張変形をすることができないので、図7に2点鎖線で示したように、薄肉胴壁14部に内側へ凹んだ状態に形成された膨出変形が可能な突出部14aが反転してラベル等の被覆体16に設けた開口部16aから突出した状態になる。

【0028】そして、前記したラベル等の被覆体16は、中空容器11の胴壁14外面に密着した状態になると同時に、開口部16aから反転突出した突出部14a部分に筒状のラベル等の被覆体16は係止されて、中空容器11の胴壁面から抜けられないように固定される。このようにしてラベル等の被覆体16が被着された超薄肉の耐熱性の円筒状中空容器11Aに、炭酸入り清涼飲料や酒類等の液体を常温充填して、口頸部12に蓋体を螺着して密封してから長期保存しても、容器の胴壁が変形していない良形の製品を得ることができた。

【0029】実施例3. 前記円筒状の薄肉中空容器の場合と同じように、ポリプロピレン樹脂等のポリオレフィン樹脂からなるプリフォームを通常の2軸延伸ブロー成形して、胴部断面が楕円形をした筒状の中空容器21に成形して、図8に示したように、口頸部22は肉厚にな

るように成形すると共に外周面には蓋体を螺着するねじ部22aを形成して、また、肩部23及び底部24は熱膨張変形をしない程度の薄肉に成形し、そして、筒状の胴部24を超薄肉状に成形すると共に該胴壁部24の一部を壁面から内側へ凹んだ形状に成形して、熱膨張や内圧による膨出変形により突出可能な突出部24aを形成して、熱充填等が可能な筒状の中空容器21本体を形成する。

【0030】また、前記円筒状の貼着体を形成した場合と同じようにして、熱収縮性の樹脂フィルムにラベルや装飾模様等を使用目的の容器に合わせて印刷表示したラベル等の貼着基材を、使用する容器に合った形状に裁断すると共に、裁断された貼着基材の所定部分に前記中空容器本体の胴部に設けた熱膨出変形する突出部24aが突出可能な開口部26aを窓開き状に打ち抜き加工をしてラベル等の被覆体または貼着体を作製する。このようにして作製された貼着体を、楕円筒状をした中空容器の胴部を被覆可能な楕円筒形となるように湾曲せしめて、その両端辺を重ね合わせて接合して、楕円状の筒形をしたラベル等の被覆体26に成形する。

【0031】上記のようにして楕円状の筒形に成形されたラベル等の被覆体26を、前記したように胴壁部24の一部に熱膨出変形する突出部24aを設けて超薄肉に成形した円筒状の中空容器21の胴部に被せてから、該ラベル等の被覆体26を赤外線ヒーターにより加熱して収縮せしめて被覆した楕円筒状をした超薄肉の中空容器21Aを形成する。

【0032】そして、ラベル等の被覆体が被覆された前記超薄肉の中空容器21Aにサラダオイルその他の油等の液体を充填すると、液体により内部から圧力により薄肉の胴部が膨出変形しようとするが、胴壁部24が円筒状の被覆体26により外側から締めつけられて膨張変形をすることができないので、図9に2点鎖線で示すように、胴壁24の内側に凹んだ状態にある膨出変形が可能な突出部24aが反転してラベル等の被覆体26に設けた開口部26aから突出した状態となり、該突出部14a部分に筒状のラベル等の貼着体26は係止されて胴壁面に密着して、中空容器21の胴壁24部から抜けられないように固定される。

【0033】上記のようにしてラベル等の被覆体26が被着された超薄肉の耐熱性の中空容器21Aには、実施例1と同様にしてその内部に清涼飲料等の液体を熱充填した場合にも、該容器の口頸部22に蓋体を螺着して密封してから冷却されても、該中空容器21Aの壁部が変形していない良形をした製品を得ることができた。

【0034】以上、述べたように、本願発明は、熱可塑性合成樹脂を2軸延伸ブロー成形により筒状に成形した薄肉の中空容器に於いて、容器の胴壁部を従来のものに比べて超薄肉に形成すると共に、該胴壁部の一部を壁面から内側へ凹んだ状態に形成して、熱膨張あるいは内圧

により膨出変形可能な突出部を形成して、膨張変形しようとする応力を吸収するようにして、また、前記中空容器に被着するラベル等の被覆体を筒状に形成すると共に該被覆体に中空容器の膨出変形する突出部が突出する開口部を形成したものを前記中空容器に被着せしめて耐熱性、耐圧性中空容器を形成したものである。

【0035】従って、上記したようにして筒状に成形されたラベル等の被覆体または貼着体が被着された本願発明の中空容器は、容器内に収容した内溶液がなくなって廃棄される際に、補強用のリブや変形力吸収用のパネル壁を設けていないので、中空容器の胴部を軽く押圧して圧縮するだけで、該容器は簡単に押し潰すことができ、且つ、接着剤を使用していないので、筒状をしたラベル等の被覆体を容器の壁面から容易に剥離させることができる。

【0036】そして、前記中空容器に内溶液を充填して前記膨出変形可能な突出部を突出せしめて、前記貼着体が突出部に係止して抜けないように固定するようにしてラベル等の貼着体を貼着した超薄肉の中空容器を形成したものであるが、前記被覆体を中空容器本体と同一の材質からなる樹脂フィルムを用いて形成しておけば、回収した容器を原料として再生利用する際に、不純物が混ざるのを防止することができるので効率良く再生することができる。

【0037】

【発明の効果】本願発明のラベル付きの中空容器は、特別な構造を有する形状にしくとも、耐膨張変形性を有する軽量で超薄肉の容器に形成することができて、且つ、接着剤を用いずにラベル等を被着することができ、容器を、簡単に安価に製造することができて、また、空になったラベル付きの中空容器を廃棄する際には、容器は弱い力で圧縮して体積を小さくすることができて、容器からラベル等を容易に分離することができるので、空の容器を大量に効率良く回収することができて、更に、回収した容器は、原料として再生利用することが極めて容易であるから、コストを低く抑えることができる。

【図面の簡単な説明】

【図1】本願発明の角形中空容器とそれに被着する筒状の被覆体を示す斜視図。

【図2】本願発明の筒状被覆体を貼着した角形中空容器を示す斜視図。

【図3】図1の筒状被覆体を形成するための被覆片を示す平面図。

【図4】筒状被覆体を設けた角形中空容器に内溶液を熱充填する前(a)と熱充填した後(b)を示す部分断面図。

【図5】図1の筒状被覆体を貼着した中空容器の空の状態(a)と内溶液を充填した状態(b)を示す断面図。

【図6】断面が円筒状の中空容器に筒状被覆体を被着した容器を示す斜視図。

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【図7】図5に示した中空容器のY-Y断面図である。

【図8】断面が楕円筒状の中空容器に筒状被覆体を被着した容器を示す斜視図。

【図9】図7に示した中空容器のZ-Z断面図である。

【図10】筒状被覆体を被着した従来の中空容器を示す側面図。

【図11】本願発明の先行例である筒状被覆体を被着した中空容器を示す側面図。

【符号の説明】

1 A. 超薄肉中空容器

1. 中空容器本体

2. 口頸部

3. 肩部

4. 胴部

\* 4 a. 突出部

4 b. 胴壁面

5. 底部

6. 被覆体

6 a. 開口部

8. 被覆片

8 a. 開口部

11. 中空容器本体

12. 口頸部

10 13. 肩部

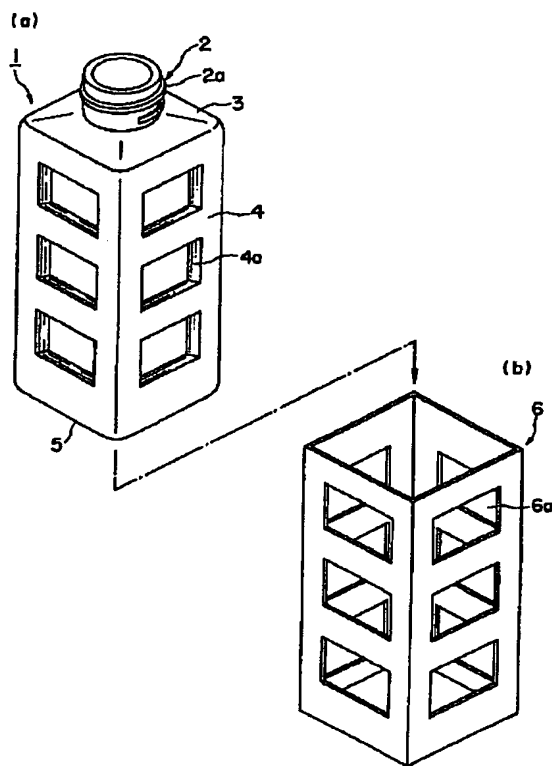
14. 胴部

15. 底部

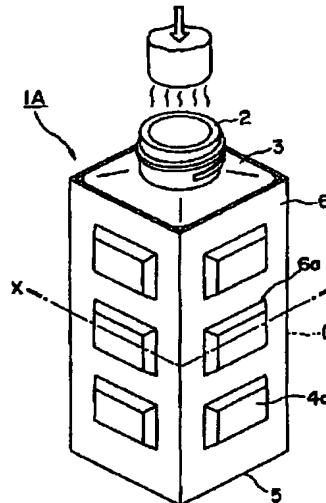
16. 被覆体

\*

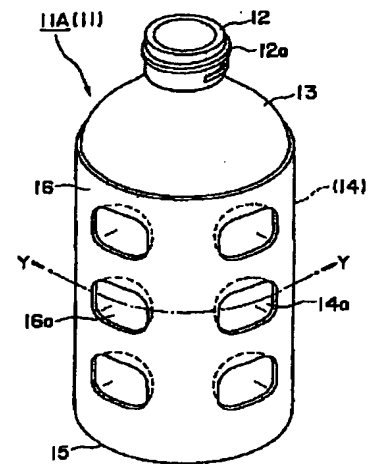
【図1】



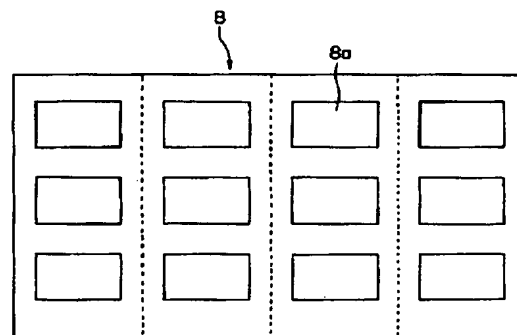
【図2】



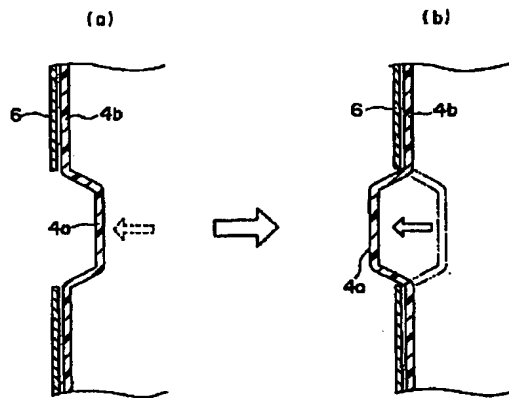
【図6】



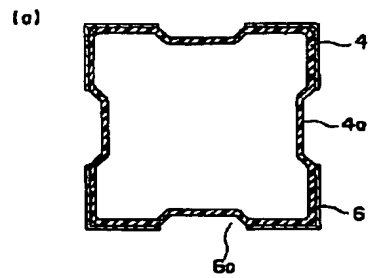
【図3】



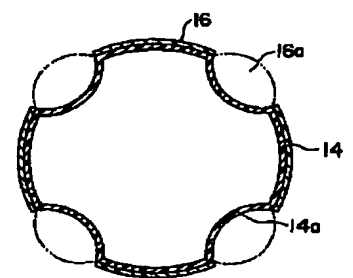
【図4】



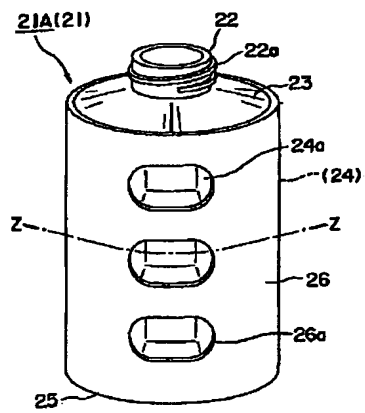
【図5】



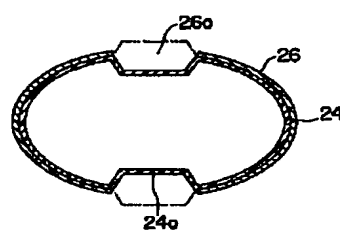
【図7】



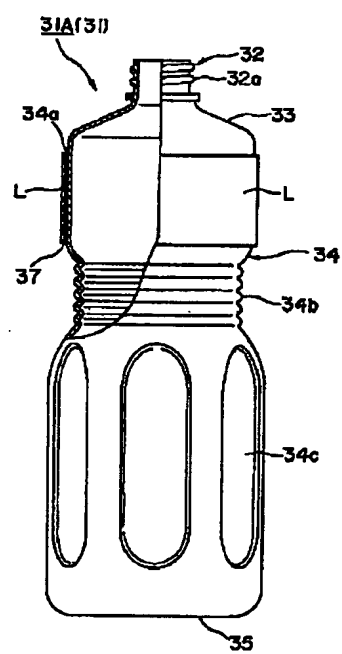
【図8】



【図9】

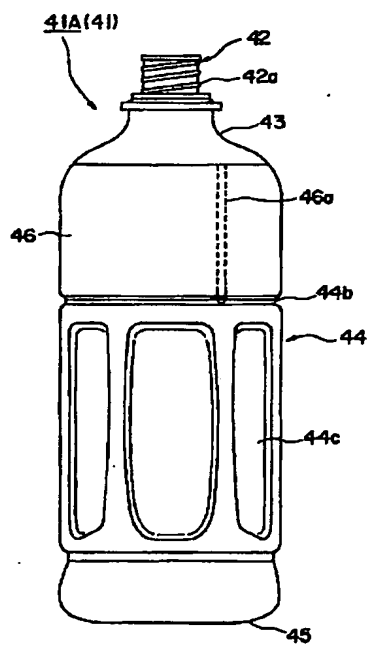


【図10】





【図11】



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フロントページの続き

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